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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/625,201

07/21/2000

Natividadel Lobo

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07/31/2006

ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

EXAMINER

BURD, KEVIN MICHAEL

ART UNIT

PAPER NUMBER

2611

DATE MAILED: 07/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

1. This office action, in response to the amendment and remarks filed 7/12/2006, is a final office action.

Response to Arguments

2. Applicant's arguments filed 7/12/2006 have been fully considered but they are not persuasive.

Applicant states Valentine does not teach or suggest a deviation of a respective one of the cost parameters as required in claim 1. The examiner disagrees. Valentine discloses defining cost parameters representing the deviation of a respective one of the cost parameters from the associated desired system criteria. The switching from half rate modulation to full rate modulation will be done when interference on adjacent channel transmissions have been reduced. The cost functions are the rates of modulation and are determined by the cost parameters, which are interference on adjacent channels.

Applicant states Valentine does not teach or suggest that the amplitude of baseband signals of Valentine over a range of frequencies is dependent on the cost function and the distortion for which compensation is to be made. The examiner disagrees. Valentine discloses defining the amplitude of the pulse functions modulating a data stream over a range of frequencies in dependence of cost functions and the distortion for which compensation is to be made. The amplitude is dependent on the cost function since, when the half rate modulation is selected, additional filtering will be

conducted changing the amplitude. This modulation is selected to remove the interference on adjacent channels as stated above.

Applicant states the present application teaches that data that defines the amplitude of the pulse function over a range of frequencies is stored in a look-up table. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., data that defines the amplitude of the pulse function over a range of frequencies is stored in a look-up table) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). This limitation is addressed in the rejection of claim 25.

Applicant states Valentine fails to teach or suggest compensating for distortion by first and second components of the transmitter. The examiner disagrees. The power of the radio transmitter generates distortion on the adjacent channels. The power of the transmitter is generated by the numerous components shown in figure 4. The power generated by these components is what is compensated for.

Applicant states Valentine does not disclose a dual mode communication device operable in a first mode when a first set of cost parameters are desired and in a second mode when a second set of cost parameters are desired. The examiner disagrees. The first set of cost parameters is the interference present on adjacent channels when full rate modulation is to take place. The second set of cost parameters is the interference present on adjacent channels when half rate modulation is to take place. The radio

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apparatus is operable during these modes as stated in valentine, in particular in column 4, lines 26-32 and 62-67.

Applicant states Valentine does not teach or suggest a dual mode communication device as stated in claim 29. The examiner disagrees. The dual mode is as described above and in the previous rejection.

Applicant states Valentine does not teach or suggest defining a pulse function for a second modulation scheme for the same desired cost parameters. The examiner disagrees. Valentine discloses the full rate modulation scheme and the half rate modulation scheme as described above and in the previous office action.

In response to applicant's argument regarding claim 28 that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the teachings of Valentine into the transmitter of Miya to prevent a radio channel from producing an unacceptable level of interference in an adjacent channel (column 1, lines 9-11: Valentine).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-6, 8-13, 19-24 26, 27 and 29-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Valentine et al (US 5,748,678).

Regarding claims 1, 10 and 33, Valentine discloses a method for defining a pulse function modulating a data signal for transmission using the transmitter shown in figure 4. The pulse function is used to reduce adjacent channel distortion by the transmitter (column 1, lines 9-40). The pulse function is determined by selecting either a full rate modulation or a half rate modulation to modulate the data signal (column 4, lines 9-32). This is the defining cost functions representing the deviation of a respective one of the cost parameters from the desired associated system criterion. The amplitude of the pulse function over a range of frequencies is dependent on the cost function and the distortion for which compensation is to be made is then conducted by filtering the signal in the half rate modulation path shown in figure 4.

Regarding claims 2-6, 8, 9, 11-13 and 19-22, Valentine discloses the levels of interference are caused by the components of the radio communication apparatus and the power transfer characteristics are linear and non-linear (column 1, lines 9-40). After

selection of the modulator, additional distortion is removed from the signal to be transmitted (column 1, lines 58-64).

Regarding claims 23 and 24, Valentine discloses a modulator system shown in figure 4. Data is input to switch 62 and then input to either a full rate modulator 64 or a half rate modulator 66. The selected modulator will output pulse shaped pulses to pre-distort 28. MPEP 2114 states: While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. The structural limitations of the claim are addressed.

Regarding claims 26 and 27, Valentine discloses the transceiver shown in figure 1. The receiver demodulates a received modulated signal to recover the originally transmitted signal.

Regarding claims 29-31, Valentine discloses a modulator system shown in figure 4. Data is input to switch 62 (means for selecting) and then input to either a full rate modulator 64 (first pulse function generator) or a half rate modulator 66 (second pulse function generator). The selected modulator will output pulse shaped pulses to pre-distort 28. MPEP 2114 states: While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. The structural limitations of the claim are addressed.

Regarding claim 32, Valentine discloses a modulator system shown in figure 4. Data is input to switch 62 (means for selecting) and then input to either a full rate

modulator 64 (first pulse function generator) or a half rate modulator 66 (second pulse function generator). The selected modulator will output pulse shaped pulses to pre-distort 28

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine et al (US 5,748,678) in view of Summers (US 5,070,254).

Regarding claims 6 and 7, Valentine discloses a method for defining a pulse function modulating a data signal for transmission using the transmitter as stated above in paragraph 3. Valentine does not disclose compensating for a reconstruction filter. Reconstructive filters are useful for shaping filters to correct a pulse signal. Pulses encounter interference that can cause pulse shape and resolution to be degraded. However, the use of these filters can cause distortion in the signal as well. Summers discloses, it is well known to use pre-distortion to compensate for the distortion produced in a reconstruction filter (column 4, lines 40-42). It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the teachings of Summers to use a reconstruction filter and to then compensate for the distortion

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caused by said filter in the system and method of Valentine for the reasons stated above.

5. Claims 14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine et al (US 5,748,678) in view of Miya et al (US 5,572,516).

Regarding claim 14, Valentine discloses a method for defining a pulse function modulating a data signal for transmission using the transmitter as stated above in paragraph 3. Valentine does not disclose the radio apparatus transmits in a TDMA system. Miya discloses TDMA systems are known and allow a plurality of mobile units can communicate with a base station at substantially the same time (column 1, lines 11-23). This allows a large amount of data to be transmitted in a short time. For this reason it would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the TDMA transmission of Miya into the transceiver of Valentine.

Regarding claim 17, Valentine discloses a method for defining a pulse function modulating a data signal for transmission using the transmitter as stated above in paragraph 3. Valentine does not disclose the radio apparatus transmits in a CDMA system. Miya discloses CDMA systems are known and allow a plurality of mobile units can communicate with a base station at substantially the same time (column 1, lines 23-42). In addition, CDMA signals are quite resistant to noise. For these reasons, it would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the TDMA transmission of Miya into the transceiver of Valentine.

Regarding claim 18, Valentine discloses using a root-raised cosine shape to shape the signal (column 4, lines 54-56).

6. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine et al (US 5,748,678) in view of the instant application's disclosed prior art.

Regarding claims 15 and 16, Valentine discloses a method for defining a pulse function modulating a data signal for transmission using the transmitter as stated above in paragraph 3. Valentine does not disclose the radio apparatus transmits in a GSM system. GSM systems have advantageous qualities such as GSM systems are power efficient on the basis that it provides a constant amplitude as stated on page 2, lines 4-15 in the instant application. It would have been obvious to use a GSM system to transmit the signals in the radio apparatus of Valentine for the reasons stated in the instant application's disclosed prior art.

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Valentine et al (US 5,748,678) in view of the Dent (US 5,909,460).

Regarding claim 25, Valentine discloses a modulator system as stated in paragraph 3, Valentine does not disclose the pulse function generator comprises a look-up table. Dent discloses great savings may be achieved by the use of pre-computed look-up tables in the modulation waveform generator (column 5, lines 15-17). This will allow time to be minimized since the modulation output signals will already be pre-

computed in the table. For this reason, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the pre-computed look-up tables of Dent into the radio communication apparatus of Valentine.

8. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miya et al (US 5,572,516) in view of Valentine et al (US 5,748,678).

Regarding claim 28, Miya discloses a dual mode communication device operable in a first mode (TDMA) and a second mode (CDMA) (column 4, line 60 to column 5, line 20). Pulses are generated according to the transmission mode selected. Miya does not disclose the selected modulation mode comprises a pulse function generator for shaping a data stream according to distortion by a component of the transmitter. Valentine discloses a method for defining a pulse function modulating a data signal for transmission using the transmitter shown in figure 4. A pulse function is used to reduce adjacent channel distortion by the transmitter (column 1, lines 9-40). The pulse function is determined by selecting either a full rate modulation or a half rate modulation to modulate the data signal (column 4, lines 9-32). It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate the teachings of Valentine into the transmitter of Miya to prevent a radio channel from producing an unacceptable level of interference in an adjacent channel (column 1, lines 9-11: Valentine).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Friday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin M. Burd
7/26/2006


KEVIN BURD
PRIMARY EXAMINER